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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/676,875	09/29/2000	Bruce Randall Cook	ECB-0004	3306

27810 7590 03/03/2003

EXXONMOBIL RESEARCH AND ENGINEERING COMPANY
P.O. BOX 900
1545 ROUTE 22 EAST
ANNANDALE, NJ 08801-0900

EXAMINER
GRIFFIN, WALTER DEAN

ART UNIT	PAPER NUMBER
1764	12

DATE MAILED: 03/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/676,875	COOK ET AL.	
	Examiner	Art Unit	
	Walter D. Griffin	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 January 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,7 and 9-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,7 and 9-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Response to Amendment

The claim objections as described in paper no. 9 have been withdrawn in view of the amendment filed on January 30, 2003.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 is indefinite because it depends upon a canceled claim. Therefore, the scope of the claim cannot be ascertained.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-4, 7 and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatanaka et al. (5,906,730) in view of Harandi (5,554,275).

The Hatanaka reference discloses a multi-step hydrodesulfurization process in which the hydrocarbon feed (e.g., gasoline) is hydrodesulfurized in a first step at conditions that minimize hydrogenation of olefins and without substantially changing the octane number of the feed. The product from the first step contains thiols (i.e., mercaptans) that are produced in the first step. This product from the first step is then further hydrodesulfurized in a second step. A third hydrodesulfurization step may also be performed. See col. 3, lines 45-67 and col. 4, lines 21-27 and lines 52-58.

The Hatanaka reference does not disclose the contacting of the feed with a catalyst in the presence of a stripping gas as the second desulfurization step.

The Harandi reference discloses a process for desulfurizing an olefinic hydrocarbon feed such as an FCC crackate by passing a liquid hydrocarbon into a stripper having a bed of hydrodesulfurization catalyst particles and contacting the liquid with the catalyst bed while passing a stripping gas (i.e., hydrogen) into the stripper. This FCC crackate is equivalent to a naphtha. The catalyst may be a Group VI and VIII metal catalyst such as cobalt-molybdenum on a support such as alumina. This catalyst would necessarily be sulfided through its use with a sulfur-containing hydrocarbon feed. See col. 1, lines 7-62, col. 2, lines 19-24, and col. 3, lines 12-37.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Hatanaka by utilizing the desulfurization process of Harandi as the second desulfurization step because separate desulfurization and stripping steps will not be required.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the combined teachings of Hatanaka and Harandi by utilizing a stripping gas having the composition as in claim 4 because any concentration of hydrogen would be expected to promote the hydrodesulfurization reactions.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the combined teachings of Hatanaka and Harandi by utilizing a concurrent system because as long as there is contact between the hydrogen, feed, and catalyst, regardless of the direction of contacting, an effective process would be expected to result.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the combined teachings of Hatanaka and Harandi by utilizing feeds to the second desulfurization step having sulfur concentrations as in claims 12 and 13 because the desulfurization would be expected to be effective in reducing sulfur concentrations regardless of the initial sulfur concentration.

Response to Arguments

The argument that neither of the applied references discloses or suggests the use of a catalyst comprised of a non-reducible metal oxide when the stripping gas is a hydrogen-containing gas and the use of a Group VIII promoted Group VIB catalyst when the stripping gas is an inert gas is not persuasive. Harandi discloses the use of an alumina-containing catalyst and a hydrogen stripping gas. As defined by applicants on page 5 of the specification, non-reducible metal oxides include alumina. Therefore, the examiner maintains that Harandi does disclose the use of a non-reducible metal oxide in combination with a hydrogen stripping gas.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter D. Griffin whose telephone number is 703-305-3774. The examiner can normally be reached on Monday-Friday 6:30 to 4:00 with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

Walter D. Griffin
Primary Examiner
Art Unit 1764

WG
February 25, 2003